AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are or were in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier.

1. – 19. (Canceled).

20. (Previously Presented) A process for preparing a furanose comprising:

(a) adding CaO to a solution of D-fructose, thereby forming 2-C-methyl-D-ribono-lactone;

(b) optionally protecting 2-C-methyl-D-ribono-lactone with a protecting group;

(c) reacting optionally protected 2-C-methyl-D-ribono-lactone with a reducing agent selected from the group consisting of NaHTe, SmI_2, H_2 and a Pd-phosphine catalyst, and $LiAl(O^tBu)_3H$ to reduce the lactone to a hydroxyl group, creating an optionally protected 2-C-methyl-D-ribofuranose compound; and

(d) optionally reacting the optionally protected 2-C-methyl-D-ribofuranose compound with a protecting group.

21. – 22. (Canceled).

23. (Previously Presented) The process of claim 20 wherein the optionally protected 2-C-methyl-D-ribono-lactone is 2,3,5-tri-O-benzoyl-2-C-methyl-D-ribono-lactone.

24. (Previously Presented) The process of claim 20 wherein the optionally protected 2-C-methyl-D-ribofuranose is 2,3,5-tri-O-benzoyl-2-C-methyl-β-D-ribofuranose.

25. (Original) The process of claim 20 wherein the protected furanose is 1,2,3,5-tetra-O-benzoyl-2-C-methyl-β-D-ribofuranose.

26. (Original) The process of claim 20 wherein the protecting group is selected from the group consisting of silyl, benzoyl, p-toluoyl, p-nitrobenzoyl, p-chlorobenzoyl, acyl, acetyl, -(C=O)-alkyl, and -(C=O)-aryl, optionally substituted with one or more groups not affected by the reducing agent of step (c).

27. (Original) The process of claim 26 wherein the protecting group is benzoyl.

28. (Original) The process of claim 26 wherein the protecting group is -(C=O)-alkyl.

29. – 30. (Canceled).

31. (Previously Presented) The process of claim 20, wherein the reactions are carried out in a solvent selected from the group consisting of water, toluene, THF, dioxane, acetonitrile, DMF, dimethylsulfoxide and ethanol.

32. (Previously Presented) The process of claim 20 wherein the reaction temperature of step (a) varies from about –5 °C to about 50 °C.

33. (Original) The process of claim 20 wherein the total time for synthesis is from about 5 days to about 14 days.

34. (Original) The process of claim 33 wherein the total time for synthesis is from about 5 days to 10 days.

35. (Original) The process of claim 33 wherein the total time for synthesis is about 60 hours.

36. (Previously Presented) The process of claim 20, comprising:

a) adding CaO to an aqueous solution of D-fructose;

b) reacting the product from step (a) with CO_2 and oxalic acid to form 2-C-methyl-D-ribonolactone;

c) reacting 2-C-methyl-D-ribonolactone with benzoyl chloride to provide 2,3,5-tri-O-benzoyl-2-C-methyl-D-ribonolactone;

d) reducing 2,3,5-tri-O-benzoyl-2-C-methyl-D-ribonolactone with a reducing agent selected from the group consisting of NaHTe, SmI_2, H_2 and a Pd-phosphine catalyst, and $LiAl(O^tBu)_3H$ to afford 2,3,5-tri-O-benzoyl-2-C-methyl-β-D-ribofuranose;

e) benzoylating 2,3,5-tri-O-benzoyl-2-C-methyl-β-D-ribofuranose in solvent to form 1,2,3,5-tetra-O-benzoyl-2-C-methyl-β-D-ribofuranose; and

f) optionally isolating the 1,2,3,5-tetra-O-benzoyl-2-C-methyl-β-D-ribo-furanose.

37. (Previously Presented) The process of claim 36, step (a), wherein the reaction time is from about 5 to about 25 hours.

38. (Original) The process of claim 36, step (a), wherein the temperature is from about 23 to about 40 °C.

39. (Original) The process of claim 36, step (c), wherein the solvent is DME.

40. (Previously Presented) The process of claim 36, step (c), wherein the reaction proceeds for about 3 to 6 hours.

41. (Previously Presented) The process of claim 36, step (d), wherein reduction proceeds for about 30 to 60 minutes.

42. (Original) The process of claim 36, step (d), wherein the solvent comprises toluene.

43. (Original) The process of claim 36, step (e), wherein the solvent comprises DME.

44. (Previously Presented) The process of claim 36, step (e), wherein the temperature is from about 0 to about 50 °C.

45. – 49. (Canceled).

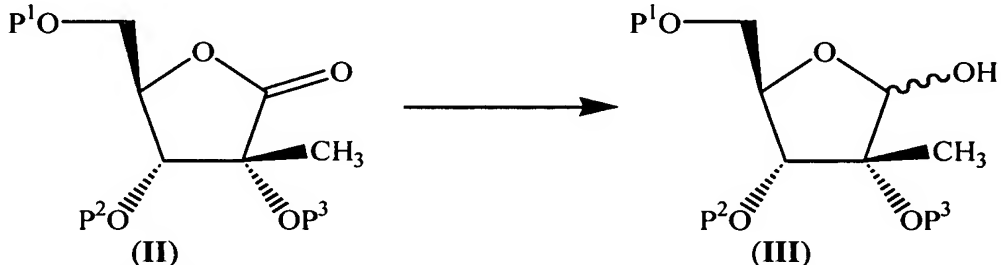
50. (Original) A process for preparing an optionally protected 2-C-methyl-β-D-ribofuranose compound comprising:

a) reducing an optionally protected 2-C-methyl-D-ribonolactone with Red-Al/ethanol to obtain an optionally protected 2-C-methyl-β-D-ribofuranose.

51. – 63. (Canceled).

64. (Previously Presented) A process for preparing an optionally protected 2-C-methyl-β-D-ribofuranose comprising the steps of:

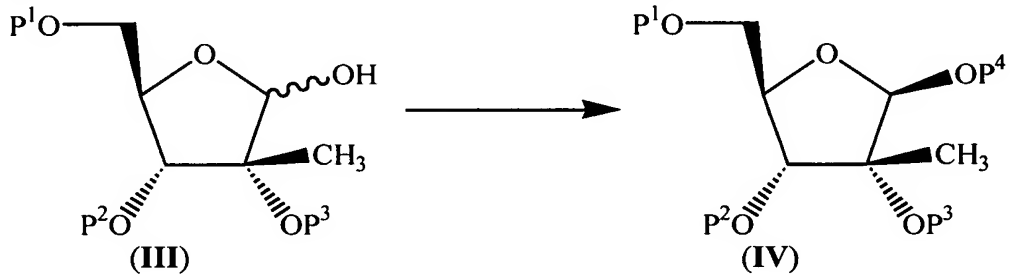
a) reducing an optionally protected 2-C-methyl-D-ribonic lactone with a reducing agent selected from the group consisting of NaHTe, SmI_2, H_2 and a Pd-phosphine catalyst, and $LiAl(O^tBu)_3H$



(II) **(III)**

wherein each P^1, P^2, and P^3 is independently hydrogen or a suitable oxygen protecting group; and

b) optionally protecting the ribofuranose derivative compound of the previous step to form an optionally protected 2-C-methyl-β-D-ribofuranose



wherein P^4 is independently hydrogen or a suitable oxygen protecting group.

65. (Original) The process of claim 64, wherein, each P^1, P^2, P^3, and P^4 is independently hydrogen or an acyl.

66. (Original) The process of claim 64, wherein, each P^1, P^2, P^3, and P^4 is independently hydrogen or a benzoyl.

67. (Previously Presented) The process of claim 64, wherein the reducing agent is $LiAl(O^tBu)_3H$, optionally in a solvent.

68. (Previously Presented) The process of claim 64, wherein the reducing agent is H_2 and a Pd-phosphine catalyst.

69. – 88. (Canceled).

89. (Previously Presented) The process of claim 64, wherein the reducing agent is NaHTe.

90. (Previously Presented) The process of claim 64, wherein the reducing agent is SmI_2.

91. (Previously Presented) The process of claim 20, wherein the total time for synthesis is less than 60 hours.

92. (Previously Presented) The process of claim 20, comprising:

(a) adding CaO to an aqueous solution of D-fructose;

(b) reacting the product from step (a) with CO_2 and oxalic acid, to form 2-C-methyl-D-ribonolactone;

(c) separating any resulting solid and aqueous phases;

(d) treating the aqueous phase with an acid;

(e) adding an organic solvent to the product of step (d);

(f) separating the organic and aqueous phases and evaporating the organic solvent of the organic phase, thereby isolating 2-C-methyl-D-ribono-lactone;

(g) optionally protecting 2-C-methyl-D-ribono-lactone with a protecting group if necessary;

(h) reacting optionally protected 2-C-methyl-D-ribono-lactone with a reducing agent selected from the group consisting of NaHTe, SmI_2, H_2 and a Pd-phosphine catalyst, and $LiAl(O^tBu)_3H$ to reduce the lactone to a hydroxyl group, creating an optionally protected 2-C-methyl-D-ribofuranose compound; and

(i) optionally reacting the optionally protected 2-C-methyl-D-ribofuranose compound with a protecting group.

93. (New) The process of claim 20, further comprising:

(e) reacting the optionally protected 2-C-methyl-D-ribofuranose with an optionally protected activated cytosine, optionally in the presence of a Lewis acid, to form a D-2'-C-methyl-cytidine product; and

(f) optionally deprotecting the D-2'-C-methyl-cytidine product.

94. (New) The process of claim 93, wherein the activated cytosine has been activated by reaction with a silylating agent.

95. (New) The process of claim 94, wherein the silylating agent is selected from the group consisting of N,O-bis(trimethylsilyl)acetamide, HMDS, TMSCl, or TBDPSCl.

96. (New) The process of claim 95, wherein the silylating agent is N,O-bis(trimethylsilyl)acetamide.

97. (New) The process of claim 93, wherein the Lewis acid is selected from the group consisting of $SnCl_4$, BF_3, $AlCl_3$, $TiCl_2$, $TiCl_4$, $FeCl_3$, $SnCl_2$ and any mixture thereof.

98. (New) The process of claim 97, wherein the Lewis acid is $SnCl_4$.

99. (New) The process of claim 93, wherein the optionally protected 2-C-methyl-D-ribofuranose is 1,2,3,5-tetra-*O*-benzoyl-2-C-methyl-β-D-ribofuranose and the optionally protected activated cytosine is benzoylcytosine.

100. (New) The process of claim 99, wherein the D-2'-C-methyl-cytidine product is deprotected with NaOMe in MeOH.

101. (New) The process of claim 93, wherein if the activated cytosine is protected in step (e) then the D-2'-C-methyl-cytidine product is deprotected in step (f), further comprising:

(g) reacting the D-2'-C-methyl-cytidine product to selectively protect the cytosine base at the N^4-position;

(h) reacting the product of step (g) with a protecting group to selectively protect the 5'-hydroxyl group;

(i) selectively acylating the 3'-hydroxyl group of the product of step (h) with a protected amino acid using a coupling reagent and a base catalyst to form a protected 3'-amino acid ester of a protected β-D-2'-C-methyl nucleoside;

(j) removing the 5'-hydroxyl and N^4-protecting groups to form a protected amino acid ester of β-D-2'-C-methylcytidine; and

(k) removing the amino acid protecting group from the product of step (j) to form a β-D-2'-C-methyl-3'-O-amino acid nucleoside.

102. (New) The process of claim 101, wherein the N^4-position of the cytosine in step a. is protected as the N,N-dimethylformamidine derivative using dimethylformamidine dimethyl acetal.

103. (New) The process of claim 101, wherein the 5'-hydroxyl group in step (h) is protected as a *t*-butyldiphenylsilyl ether.

104. (New) The process of claim 101, wherein the coupling reagent in step (i) is a carbodiimide coupling reagent.

105. (New) The process of claim 104, wherein the carbodiimide coupling reagent is 1-[3-(dimethylamino)-propyl]-3-ethyl-carbodiimide hydrochloride.

106. (New) The process of claim 101, wherein the base cataylst is 4-dimethylaminopyridine.

107. (New) The process of claim 101, wherein the amino acid is valine.